

CLAIMS

1. A method for communicating information relating to the scheduling of uplink data transmissions, wherein a mobile terminal transmits data on the uplink to a plurality of base stations during soft handover of the mobile terminal in a mobile communication system, and wherein at least one base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover, the method comprising the steps of:

determining at the at least one scheduling base station of said plurality of base stations scheduling information indicative of a maximum amount of uplink resources allocatable to the mobile terminal,

indicating the allocated maximum amount of uplink resources to at least one other base station of said plurality of base stations and

scheduling by the at least one other base station at least one other mobile terminal in communication with a respective base station taking into account the indicated maximum amount of uplink resources allocated to said mobile terminal in soft handover.
2. The method according to claim 1, further comprising the step of signaling by said at least one scheduling base station the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of resources to the terminal used for uplink data transmissions.
3. The method according to claim 1 or 2, wherein the maximum amount of resources indicates the maximum data rate or the uplink maximum transmission power that may be used by the mobile terminal for uplink transmissions.
4. The method according to one of claims 2 to 3, wherein the at least one scheduling base station schedules uplink data transmissions by controlling the TFCS available to the mobile terminal in soft handover for uplink data transmission or by controlling the uplink transmission power of the mobile terminal.

5. The method according to claims 1 to 4, wherein indicated allocated maximum amount of uplink resources is transported via an network entity controlling radio resources of the mobile terminal in soft handover, and

wherein indicating the allocated maximum amount of uplink resources comprises the steps of:

signaling the allocated maximum amount of resources from the at least one scheduling base station to a network entity controlling radio resources of said mobile terminal in soft handover, and

forwarding the allocated maximum amount of resources to the other base stations by the radio resource controlling entity.
6. The method according to claim 5, wherein the radio resource control entity determines whether to forward the allocated maximum amount of uplink resources to a respective one of said other base stations based on the cell interference within the radio cell controlled by the respective one of said other base stations.
7. The method according to one of claims 1 to 6, wherein indicated allocated maximum amount of uplink resources is transported using control signaling.
8. The method according to one of claims 1 to 7, wherein the scheduling base station determines, signals and indicates the maximum amount of uplink resources allocated to the mobile terminal in soft handover each time the mobile terminal in soft handover is scheduled.
9. The method according to one of claims 1 to 8, further comprising the steps of determining at the at least one scheduling base station new scheduling information indicative of a new maximum amount of resources allocated to the mobile terminal,

signaling by the at least one scheduling base station the determined second scheduling information to the mobile terminal in soft handover to allocate the new maximum amount of resources to the terminal, and

indicating the allocated new amount of resources to the said other base stations, if a difference between the new amount of resources and the previous maximum amount of resources is larger than a predetermined threshold value.

10. The method according to claim 9, further comprising the step of receiving by the at least one scheduling base station information indicating the predetermined threshold value from a network entity controlling the radio resources of the mobile terminal in soft handover.
11. The method according to one of claims 4 to 10, wherein the plurality of base stations defines the active set of the mobile terminal in soft handover and

wherein the method further comprises the steps of adding a base station to the active set of the mobile terminal and

signaling the maximum amount of resources allocated to the mobile terminal in soft handover to said added base station by the radio resource controlling entity.
12. The method according to claim 11, wherein information for signaling of the maximum amount of resources to said added base station is comprised within a message communicated during the active set update procedure.
13. The method according to one of claims 1 to 13, wherein one base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover to all base stations of said plurality of base stations.
14. The method according to one of claims 1 to 13, wherein each of said base stations schedules uplink data transmissions of the mobile terminal in soft handover to the respective one of said plurality of base stations.
15. The method according to claim 15, wherein each of the plurality of base stations determines scheduling information indicative of a maximum amount of resources allocatable to the mobile terminal by the respective base station, and

signals the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of resources to the terminal for uplink data transmission to the respective base station.

16. The method according to claim 16, further comprising the step of choosing by the mobile terminal the lowest assigned maximum amount of resources for uplink transmissions to all base stations of the plurality of base stations.
17. The method according to claim 16, further comprising the step of forming by the mobile terminal a combined maximum amount of uplink resources on the assigned maximum amounts of uplink resources, which is used by the mobile terminal for uplink transmissions to all base stations of the plurality of base stations.
18. The method according to one of claims 16 to 18, wherein each of the plurality of base stations indicates its allocated maximum amount of resources to a network entity controlling the radio resources of the mobile terminal in soft handover and

at least a subset of the plurality of base stations schedules at least one mobile terminal in communication with the respective base station taking into account a combined value or a lowest value of a maximum amount of resources signaled to the respective base station from the radio resource control entity.
19. The method according to claim 19, further comprising the steps of determining at the radio resource control entity a combined value or a lowest value of a maximum amount of resources based on the maximum amounts of allocated resources indicated by the plurality of base stations and

signaling the combined value or the lowest value of a maximum amount of resources from the radio resource control entity to a subset of said plurality of base stations.
20. The method according to claim 20, wherein the combined value or the lowest value of a maximum amount of resources is signaled to those base stations having indicated a maximum amount of resources different from the combined value or the lowest value.

21. The method according to one of claims 1 to 20, further comprising the step of requesting by a network entity controlling the radio resources of the mobile terminal in soft handover from at least one base station of said plurality of base station to signal the maximum amount of resources allocated to the mobile terminal in soft handover to said radio resource controlling entity.
22. The method according to one of claims 1 to 21, wherein the maximum allocated amount of uplink resources is signaled from a base station to the mobile terminal via a shared channel or a dedicated channel.
23. The method according to one of claims 1 to 22, wherein the transmitted uplink data is carried by an E-DCH.
24. A mobile communication system communicating information relating to the scheduling of uplink data transmissions, wherein a mobile terminal transmits data on the uplink to a plurality of base stations during soft handover of the mobile terminal in the mobile communication system, and wherein at least one base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover, the communication system comprising:

the mobile terminal in soft handover, said plurality of base stations and a network entity controlling the radio resources of the mobile terminal in soft handover,

wherein the at least one scheduling base station of said plurality of base stations is adapted to determine scheduling information indicative of a maximum amount of resources allocatable to the mobile terminal, and

the at least one scheduling base station and the radio resource control entity being adapted to indicate the allocated maximum amount of resources to the other base stations of said plurality of base stations.
25. The mobile communication system according to claim 24, wherein the at least one scheduling base station is adapted to signal the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of resources to the terminal,

26. The communication system according to claim 25, wherein the other base stations of said plurality of base stations being adapted to schedule at least one other mobile terminal in communication with a respective base station taking into account the indicated maximum amount of resources allocated to said mobile terminal in soft handover.
27. The communication system according to claim 25 or 26, wherein the mobile terminal in soft handover, said plurality of base stations and a network entity controlling the radio resources of the mobile terminal in soft handover are adapted to perform the steps of the method according to one of claims 3 to 24.
28. A base station in a mobile communication system communicating information relating to the scheduling of uplink data transmissions, wherein a mobile terminal transmits data on the uplink to a plurality of base stations including the base station during soft handover of the mobile terminal in a mobile communication system, said base station comprising:
- processing means for determining scheduling information indicative of a maximum amount of resources allocatable to the mobile terminal,
- a transmitter for signaling determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of resources to the terminal,
- wherein the transmitter is adapted to signal the allocated maximum amount of resources to a network entity controlling the radio resources of the mobile terminal in soft handover.
29. The base station according to claim 28 further comprising:
- a receiver for receiving a maximum amount of resources allocated to the mobile terminal in soft handover from the radio resource control entity, and
- a scheduler for scheduling at least one other mobile terminal in communication with the base station taking into account the received maximum amount of resources allocated to said mobile terminal in soft handover.

30. A radio resource controller in a mobile communication system communicating information relating to the scheduling of uplink data transmissions of a mobile terminal to at least one of a plurality of base stations, wherein the mobile terminal is in soft handover and transmits uplink data to said plurality of base stations, the radio network controller comprising:
- a receiver for receiving a maximum amount of resources allocated to the mobile terminal in soft handover from at least one other base station of said plurality of base stations,
- a transmitter for signaling the received maximum amount of resources allocated to the mobile terminal in soft handover to at least one other base station of said plurality of base stations.
31. The radio network controller according to claim 30, wherein the receiver is adapted to receive a maximum amount of resources allocated to the mobile terminal in soft handover from at least a subset of said plurality of base stations,
- the radio network controller further comprising processing means to determine a combined value or a lowest value of a maximum amount of resources based on the maximum amounts of allocatable resources indicated by the subset of base stations and
- the transmitter being adapted to signal the combined value or the lowest value of a maximum amount of resources to a subset of said plurality of base stations.
32. The radio network controller according to claim 29 or 30, further comprising means adapted to perform the steps of the method according to one of claims 5 to 13 or 19 to 24.
33. A method for communicating information relating to the scheduling of uplink data transmissions, wherein a mobile terminal transmits data on the uplink to a plurality of base stations during soft handover of the mobile terminal in a mobile communication system, and wherein at least a subset of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover, the method comprising the steps of:

receiving at the mobile terminal scheduling information indicative of a maximum amount of resources allocated to the mobile terminal from the subset of base stations,

choosing at the mobile terminal a maximum amount of resources for uplink data transmissions to the plurality of base stations based on the received maximum amounts of resources, and

indicating the plurality of base stations the chosen maximum amount of resources or the chosen maximum power for uplink data transmission.

34. The method according to claim 33, further comprising the step of scheduling by the base stations receiving the chosen maximum amount of resources at least one other mobile terminal in communication with a respective base station taking into account the indicated chosen maximum amount of resources received from said mobile terminal in soft handover.
35. The method according to claim 33 or 34, wherein the subset of base station schedules uplink data transmissions by controlling the TFC available to the mobile terminal in soft handover and the mobile terminal indicates the chosen maximum amount of resources by means of a TFC pointer indicating the chosen maximum TFC for uplink data transmissions.
36. The method according to claim 35, wherein the message signaling the TFC pointer to the plurality of base stations comprises a flag indicating to the plurality of base stations that the maximum data rate specified by the TFC indicator within the message is used for uplink data transmissions during soft handover by the mobile terminal.
37. A mobile terminal for communicating information relating to the scheduling of uplink data transmissions, wherein the mobile terminal transmits data on the uplink to a plurality of base stations during soft handover of the mobile terminal in a mobile communication system, and wherein at least a subset of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover, the mobile terminal comprising:

a receiver for receiving at the mobile terminal scheduling information indicative of a maximum amount of resources allocated to the mobile terminal from the subset of base stations,

selection means for choosing at the mobile terminal a maximum amount of resources for uplink data transmissions to the plurality of base stations based on the received maximum amounts of resources, and

a transmitter for indicating to the plurality of base stations the chosen maximum amount of resources or the chosen maximum power for uplink data transmission.